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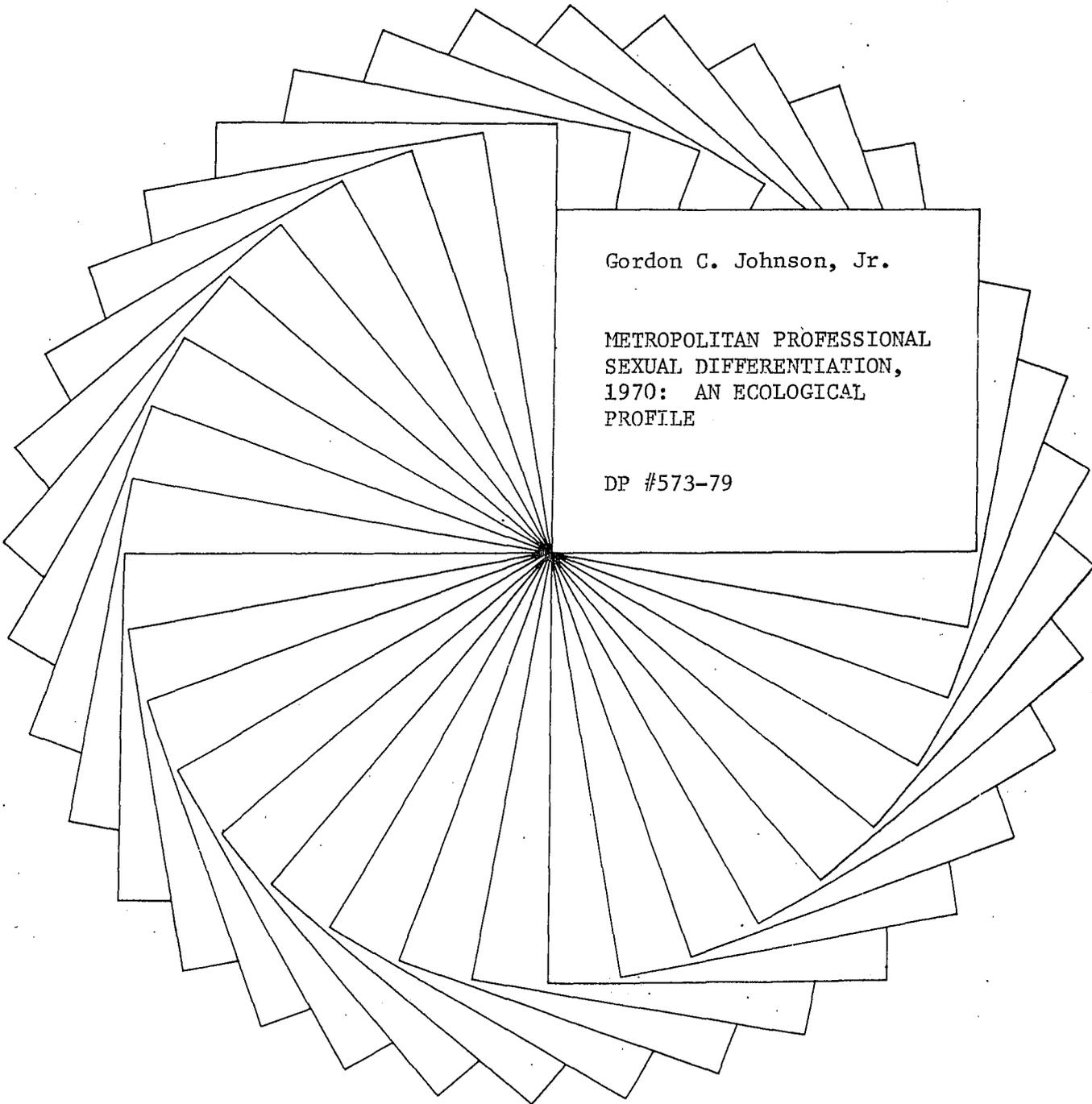
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METROPOLITAN PROFESSIONAL
SEXUAL DIFFERENTIATION,
1970: AN ECOLOGICAL
PROFILE

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Metropolitan Professional Sexual Differentiation, 1970:

An Ecological Profile

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ABSTRACT

From the perspective of contemporary human ecology, this paper presents a descriptive analysis of sexual differentiation in professional occupations, using data provided for the large metropolitan labor forces of the United States in 1970. Aggregate profile characteristics of the total metropolitan labor force--the combined professional work forces of the 125 SMSA's with populations of 250,000 in 1970--are examined. A summary description of sexual segregation (PSD) is then presented, treating the metropolitan occupational structures independently. The profile data show that most professions are male-dominant, and that males are more diffusely distributed than females. And, according to the segregation indexes examined, about 60% of the members of either sex would have to be occupationally relocated for equality to be obtained. However, knowledge of the region of location, size, and percentage of the labor force that is female (but not the age) of an SMSA either accents or attenuates such expectations.

METROPOLITAN 'PROFESSIONAL SEXUAL DIFFERENTIATION

It has been generally observed by scholars of the labor force that a substantial degree of sex-based occupational differentiation characterizes the metropolitan professional labor force. Within every major metropolis of the United States, most prestigious, upper-status occupations of the professional sector are dominated by a single sex; i.e., they are sex-typed[1] in the extreme. This assertion applies virtually without qualification; since whether a profession is typically "salaried", or the clientele that receives a profession's services consists of individuals or social groups, the expected character of sexual distinctions remains fixed. For example the occupation title "registered nurse" brings to mind, not just a set of professional nursing and medical skills, but also a certain sex. Likewise, the word "physician" not only signals basic professional skills that are crucial for human survival, but also suggests a certain sex. In no metropolitan center within the United States are professional occupations sexually neutral, in terms of their occupants. Thus, in no metropolitan area are the professional occupations randomly allocated on the basis of sex.

Differential male-female metropolitan professional occupation participation patterns underlie the descriptive analysis which is the focus of this paper. These differences are the substantive bases of the measures of professional sexual differentiation (PSD) that are used to descriptively study the nature and extent of sex differences in metropolitan professional occupations. Accordingly, PSD is conceptualized as (1) an existing, aggregate pattern that is uniquely observable at any single time point; and, (2) an organizational feature which, at least for the moment of observation, is characteristic of the sustenance structure of metropolitan areas in the United States.

Procedures and Data

To measure the dependent variable, PSD, in 1970, a popular and generally accepted (Cortese et al., 1976; Taeuber and Taeuber, 1976) variant of the index of dissimilarity (used as a measure of several types of social differentiation) is employed,[2] along with other independent measures of select demographic and ecological features. The index for PSD may be calculated by obtaining the proportional distribution of males and females in each of the professional occupations, determining the differences between these proportions, summing their absolute differences, and dividing the sum by two. If converted to percentage terms (by multiplication by 100), the resultant index ranges in value from zero to a value approaching 100, and represents the minimum percentage amount of redistribution necessary for either the males or females to achieve the condition of no professional differentiation by sex. The larger the index, the greater the amount of PSD.

The occupational data employed were extracted from the state volumes of the 1970 Census (U.S. Bureau of the Census, 1972a, b), which report 111 detailed occupations, by sex, for the economically active professionals within the 125 metropolitan areas with populations of 250,000 or more in 1970. The data for the independent variables also derive from Census sources.

Within the framework of a descriptive analysis, a broad range of rather important basic questions may be pursued. For example, though we cannot measure every aspect of sexual differentiation between any two metropolitan areas, we can conduct useful cross-sectional and longitudinal comparisons on the basis of a reliable index of only one dimension of sexual differentiation. Hence, intermetropolitan comparisons--

depending on what is known about the individual metropolises--offer one

way of discovering those features of the social and ecological organization

of a metropolis or those population features of a metropolitan area that

are systematically related to PSD. Are the professional occupation

structures of Northern metropolises any less differentiated than those

in Western cities? Does the size or age of an SMSA correlate in any way

with PSD?

THE METROPOLITAN PROFESSIONAL LABOR FORCE, 1970

In the United States in 1970, nearly three of every four employed male

professionals (73.1%) worked in a large metropolis (i.e., in SMSAs with

populations of 250,000 or more) and better than two-thirds (68.6%) of the

nation's economically active female professionals were so located (U.S.

Bureau of the Census, 1972b).

To sketch the pattern of sex distinctions within the metropolitan

professional occupational group requires, as a first step, the allocation

of the professional workers to a single, representative occupational

structure while at the same time maintaining their unit distinctions of

sex and specific occupation. Such a strategy produces an aggregate sexual

profile of the metropolitan professional labor force.

The occupation-specific frequency distributions of male and female

metropolitan professionals in Table 1, therefore, represent an overall

sexual profile of the total professional labor force within all of the

large metropolises of the United States combined.[3]

Within the profile, compositional attributes of the independent

professional occupations reveal several distinct aspects of sexual disparity.

TABLE   1

SEXUAL PROFILE OF THE TOTAL METROPOLITAN PROFESSIONAL LABOR FORCE, 1970.

OCCUPATION TITLE	Males (1)	Females (2)	Totals (3)	PCM[a] (4)	PCF[b] (5)	PMLF[c] (6)	PFLF[d] (7)	PTPLF[e] (8)
Accountants	400801	132618	533419	75.	25.	.0840	.0448	.0690
Architects	44035	1680	45715	96.	4.	.0092	.0006	.0059
Computer Programmers	99461	30186	129647	77.	23.	.0209	.0102	.0168
Computer Systems Analysts	56430	9976	66406	85.	15.	.0118	.0034	.0086
Computer Specialists, N.E.C.[f]	9215	1482	10697	86.	14.	.0019	.0005	.0014
Engineers: Aeronautical & Astronautical	58526	964	59490	98.	2.	.0123	.0003	.0077
Engineers: Chemical	36575	463	37038	99.	1.	.0077	.0002	.0048
Engineers: Civil	121015	1628	122643	99.	1.	.0254	.0006	.0159
Engineers: Electrical & Electronic	213446	3643	217089	98.	2.	.0447	.0012	.0281
Engineers: Industrial	131391	4196	135587	97.	3.	.0275	.0014	.0175
Engineers: Mechanical	135950	1154	137104	99.	1.	.0285	.0004	.0177
Engineers: Metallurgical & Materials	11538	152	11690	99.	1.	.0024	.0001	.0015
Engineers: Mining	2255	14	2269	99.	1.	.0005	.0000	.0003
Engineers: Petroleum	6628	76	6704	99.	1.	.0014	.0000	.0009
Engineers: Sales	45857	327	46184	99.	1.	.0096	.0001	.0060
Engineers: N.E.C.	141170	2100	143270	99.	1.	.0296	.0007	.0185
Farm Management Advisors	1030	299	1329	78.	22.	.0002	.0001	.0002
Foresters & Conservationists	7265	456	7721	94.	6.	.0015	.0002	.0010
Home Management Advisors	110	2497	2607	4.	96.	.0000	.0008	.0003
Judges	5943	415	6358	93.	7.	.0012	.0001	.0008
Lawyers	192947	9925	202872	95.	5.	.0405	.0034	.0263
Librarians	14711	59788	74499	20.	80.	.0031	.0202	.0096
Archivists & Curators	3654	1375	5029	73.	27.	.0008	.0005	.0007
Actuaries	3425	1016	4441	77.	23.	.0007	.0003	.0006

TABLE 1 (Cont'd)

OCCUPATION TITLE	Males (1)	Females (2)	Totals (3)	PCM (4)	PCF (5)	PMLF (6)	PFLF (7)	PTPLF (8)
Mathematicians	4681	1433	6114	77.	23.	.0010	.0005	.0008
Statisticians	10886	7920	18806	58.	42.	.0023	.0027	.0024
Life & Phy. Sc'ts:[g] Agricultural	5012	460	5472	92.	8.	.0011	.0002	.0007
Life & Phy. Sc'ts: Atmospheric and space	3584	287	3871	93.	7.	.0008	.0001	.0005
Life & Phy. Sc'ts: Biological	12244	7934	20178	61.	39.	.0026	.0027	.0026
Life & Phy. Sc'ts: Chemists	70339	10009	80348	88.	12.	.0147	.0034	.0104
Life & Phy. Sc'ts: Geologists	12894	547	13441	96.	4.	.0027	.0002	.0017
Life & Phy. Sc'ts: Marine	2254	129	2383	95.	5.	.0005	.0000	.0003
Life & Phy. Sc'ts: Physicists and Astronomers	16355	669	17024	96.	4.	.0034	.0002	.0022
Life & Phy. Sc'ts: N.E.C.	824	152	976	84.	16.	.0002	.0001	.0001
Operations & Systems Researchers & Analysts	57913	6445	64358	90.	10.	.0121	.0022	.0083
Personnel & Labor Relations Workers	146246	71069	217315	67.	33.	.0307	.0240	.0281
Chiropractors	6981	598	7579	92.	8.	.0015	.0002	.0010
Dentists	61432	2348	63780	96.	4.	.0129	.0008	.0083
Optometrists	10022	411	10433	96	4.	.0021	.0001	.0014
Pharmacists	61065	8377	69442	88.	12.	.0128	.0028	.0090
Physicians, Medical & Osteopathic	190632	20795	211427	90.	10.	.0400	.0070	.0274
Podiatrists	4181	299	4480	93.	7.	.0009	.0001	.0006
Veterinarians	9063	627	9690	94.	6.	.0019	.0002	.0013
Health Practitioners, N.E.C.	432	388	820	53.	47.	.0001	.0001	.0001
Dietitians	1966	22827	24793	8.	92.	.0004	.0077	.0032
Registered Nurses	14068	519330	533898	3.	97.	.0029	.1757	.0691
Therapists	18241	32847	51088	36.	64.	.0038	.0111	.0066
Clinical Laboratory Technologists & Techn's[h]	22594	59518	82112	28.	72.	.0047	.0201	.0106
Dental Hygienists	689	10730	11419	6.	94.	.0001	.0036	.0015
Health Record Technologists & Techn's	630	6480	7110	9.	91.	.0001	.0022	.0009

TABLE 1 (Cont'd)

OCCUPATION TITLE	Males (1)	Females (2)	Totals (3)	PCM (4)	PCF (5)	PMLF (6)	PFLF (7)	PTPLF (8)
Radiologic Technologists and Techn's	11126	23697	34823	32.	68.	.0023	.0080	.0045
Therapy Assistants	698	1383	2081	34.	66.	.0001	.0005	.0003
Health Technologists and Techn's, N.E.C.	18754	23347	42101	45.	55.	.0039	.0079	.0054
Clergymen	104857	3363	108220	97.	3.	.0220	.0011	.0140
Religious Workers, N.E.C.	10671	13557	24228	44.	56.	.0022	.0046	.0031
Economists	49892	6464	56356	89.	11.	.0105	.0022	.0073
Political Scientists	614	185	799	77.	23.	.0001	.0001	.0001
Psychologists	12969	8554	21523	60.	40.	.0027	.0029	.0028
Sociologists	627	405	1032	61.	39.	.0001	.0001	.0001
Urban and Regional Planners	5949	966	6915	86.	14.	.0012	.0003	.0009
Social Scientists, N.E.C.	1888	812	2700	70.	30.	.0004	.0003	.0003
Social Workers	57405	97076	154481	37.	63.	.0120	.0328	.0200
Recreation Workers	20603	15331	35934	57.	43.	.0043	.0052	.0046
Biology Teachers, C&U[1]	8612	2689	11301	76.	24.	.0018	.0009	.0015
Chemistry Teachers, C&U	8084	1165	9249	87.	13.	.0017	.0004	.0012
Engineering Teachers, C&U	9146	586	9732	94.	6.	.0019	.0002	.0013
Physics Teachers, C&U	8421	445	8866	95.	5.	.0018	.0002	.0011
Other Life & Physical Science Teachers, C&U	3445	295	3740	92.	8.	.0007	.0001	.0005
Mathematics Teachers, C&U	11870	2890	14760	80.	20.	.0025	.0010	.0019
Economics Teachers, C&U	5247	427	5674	92.	8.	.0011	.0001	.0007
English Teachers, C&U	13124	9472	22596	58.	42.	.0028	.0032	.0029
History Teachers, C&U	7848	1793	9641	81.	19.	.0016	.0006	.0012
Miscellaneous Social Sciences Teachers, C&U	14074	4942	19016	74.	26.	.0030	.0017	.0025
Other Specified Teachers, C&U	55294	32752	88046	63.	37.	.0116	.0111	.0114
Not Specified Teachers, C&U	54762	24048	78810	69.	31.	.0115	.0081	.0102
Adult Education Teachers, Except C&U	16212	14845	31057	52.	48.	.0034	.0050	.0040

TABLE 1 (Cont'd)

OCCUPATION TITLE	Males (1)	Females (2)	Totals (3)	PCM (4)	PCF (5)	PMLF (6)	PFLF (7)	PTPLF (8)
Elementary School Teachers, Except C&U	131642	695732	827374	16.	84.	.0276	.2352	.1071
Prekindergarten & Kindergarten Teachers[j]	1598	81570	83168	2.	98.	.0003	.0276	.0108
Secondary School Teachers, Except C&U	308061	301046	609107	51.	49.	.0646	.1018	.0788
Teachers, Except C&U, N.E.C.	31965	65316	97281	33.	67.	.0067	.0221	.0126
E&STs:[k] Agriculture and Biological,Exc.Health	9997	5597	15594	64.	36.	.0021	.0019	.0020
E&STs: Chemical	32183	5891	38074	85.	15.	.0067	.0020	.0049
E&STs: Electrical & Electronic Engineering	106772	6346	113118	94.	6.	.0224	.0021	.0146
E&STs: Industrial Engineering	12218	1465	13683	89.	11.	.0026	.0005	.0018
E&STs: Mechanical Engineering	9799	323	10122	97.	3.	.0021	.0001	.0013
E&STs: Mathematical	455	55	510	89.	11.	.0001	.0000	.0001
E&STs: Surveyors	26517	1024	27541	96.	4.	.0056	.0003	.0036
Engineering & Science Technicians, N.E.C.	92151	21116	113267	81.	19.	.0193	.0071	.0147
Airplane Pilots	36009	385	36394	99.	1.	.0075	.0001	.0047
Air Traffic Controllers	17742	1048	18790	94.	6.	.0037	.0004	.0024
Embalmers	2639	155	2794	94.	6.	.0006	.0001	.0004
Flight Engineers	5333	113	5446	98.	2.	.0011	.0000	.0007
Radio Operators	12346	3891	16237	76.	24.	.0026	.0013	.0021
Tool Programmers, Numerical Control Techn's	2018	410	2428	83.	17.	.0004	.0001	.0003
Techn's, except Health & E&STs, N.E.C.	18507	4906	23413	79.	21.	.0039	.0017	.0030
Vocational & Educational Counsellors	36823	30901	67724	54.	46.	.0077	.0104	.0088
Actors	5192	3405	8597	60.	40.	.0011	.0012	.0011
Athletes & Kindred Workers	22557	8955	31512	72.	28.	.0047	.0030	.0041
Authors	14591	6180	20771	70.	30.	.0031	.0021	.0027
Dancers	972	4209	5181	19.	81.	.0002	.0014	.0007
Designers	67262	21721	88983	76.	24.	.0141	.0073	.0115

TABLE   1 (Cont'd)

OCCUPATION TITLE	Males (1)	Females (2)	Totals (3)	PCM (4)	PCF (5)	PMLF (6)	PFLF (7)	PTPLF (8)
Editors & Reporters	65913	42870	197766	61.	39.	.0138	.0145	.0141
Musicians & Composers	42414	21589	64003	66.	34.	.0089	.0073	.0083
Painters & Sculptors	54466	28517	82983	66.	34.	.0114	.0096	.0107
Photographers	40940	6085	47025	87.	13.	.0086	.0021	.0061
Public Relations Men & Publicity Writers	42106	16214	58320	72.	28.	.0088	.0055	.0075
Radio & Television Announcers	9632	717	10349	93.	7.	.0020	.0002	.0013
Writers, Artists, & Entertainers, N.E.C.	35027	12044	47071	74.	26.	.0073	.0041	.0061
Research Workers, Not Specified	60838	23286	84124	72.	28.	.0128	.0079	.0109
Professional, Technical & Kindred, N.E.C.	215518	166998	382516	56.	44.	.0452	.0564	.0495

[a] Percent male.

[b] Percent female.

[c] Proportion of the male professional labor force.

[d] Proportion of the female professional labor force.

[e] Proportion of the total metropolitan professional labor force.

[f] Not elsewhere classified.

[g] Life and Physical Scientists.

[h] Technicians.

TABLE   1 (Cont'd)

[i]College and University.

[j]Except College and University.

[k]Engineering and Science Technicians.

Source: See text.

Practically all professional occupations remain sexually differentiated, and better than two-thirds (75 of 111) are male-dominant, that is, they consist of 70% or more males.[4] In contrast, only 10 female-dominant professions in which 70% or more are women, can be identified: (1) Pre-Kindergarten Teachers; (2) Registered Nurses; (3) Home Management Advisors; (4) Dental Hygienists; (5) Dietitians (6) Health Record Technologists and Technicians; (7) Elementary School Teachers; (8) Dancers; (9) Librarians; and (10) Clinical Laboratory Technicians.

The remaining 26 professional occupations lie between the two extremes, but a disproportionate share of even these are more nearly male-dominant than female-dominant. There are only 5 occupations within 10 percentage points of sexual parity. The most sexually undifferentiated professional occupation is that of Secondary School Teacher, wherein males hold only a slight proportionate edge (51.0%) - a pattern which applies to most of the remaining occupations in this group: Adult Education Teachers, Health Practitioners and Vocational and Educational Counselors. The one "deviant" occupation--Health Technologists and Technicians--is weighted in favor of female participants who make up 55% of the total.

Because of the relatively greater representation of males within the metropolitan labor force and the imbalanced sexual composition of the professional occupations, males are distributed more extensively throughout the total metropolitan professional structure. Nearly half (49.5) the total female professional labor force is located in only the ten female-dominant professions. Another 35% of the female professionals are allocated among the 26 professions with intermediary levels of sexual differentiation. And only 15% of professional women are associated with the 75 male-dominated

professions. An interesting corollary observation is that there are far more male professionals in sex-typed occupations than there are females in female-dominant professions. But even so, the relative distribution of males and females throughout the metropolitan labor force indicates that, in general, males rather than females are allocated more evenly over the full range of professional classifications.

Apart from the different patterns for each of the sexes independently, of interest also are the combined patterns of sex distribution of the professional labor force – i.e., the size of each profession in comparison to the total professional work force. The largest professional occupation is that of Elementary School Teachers. In 1970, this category contained 10.71% of all metropolitan professional workers. Second, the occupation, Secondary School Teachers, comprises 7.88%. Thus, nearly 1 in 5 professionals are school teachers; a sizeable segment of the total. Registered Nurses (6.9%) and Accountants (6.9%) are the only other occupations represented by more than 1 of 20 professionals, and most of these too are disproportionately female. The residual category, Professional, Technical and Kindred Workers, N.E.C., accounts for 4.95% of the total profile. And six categories contain 2-3% of the workers. The remaining occupation classes are comparatively small (less than 2%).

METROPOLITAN PROFESSIONAL SEXUAL DIFFERENTIATION, 1970

Indexes of professional sexual differentiation for 125 SMSAs are presented in Table 2. The table includes all SMSAs within the continental United States (excluding Alaska) and Hawaii with a total population size

TABLE 2

INDEXES OF PROFESSIONAL SEXUAL DIFFERENTIATION FOR THE 125 SMSA's
WITH POPULATIONS 250,000, 1970.

SMSA CODE[a]	METROPOLITAN AREA	UNSTD DELTA[b]
80	Akron, Ohio	.6359
160	Albany - Schenectady - Troy, N.Y.	.5814
200	Albuquerque, New Mexico	.5632
240	Allentown - Bethlehem - Easton, Pa. - N.J.	.6387
360	Anaheim - Santa Ana - Garden Grove, Calif.	.5910
460	Appleton - Oshkosh, Wisc.	.5597
520	Atlanta, Ga.	.5764
600	Augusta, Ga. - S.C.	.6524
640	Austin, Texas	.4851
680	Bakersfield, Calif.	.5708
720	Baltimore, Md.	.5797
760	Baton Rouge, La.	.5946
840	Beaumont - Port Arthur - Orange, Tex.	.6905
960	Binghamton, N.Y. - Pa.	.6606
1000	Birmingham, Ala.	.6390
1120	Boston, Mass.	.5706
1160	Bridgeport, Conn.	.6357
1280	Buffalo, N.Y.	.5852
1320	Canton, Ohio	.6684
1440	Charleston, S.C.	.6566
1520	Charlotte, N.C.	.6443
1560	Chattanooga, Tenn. - Ga.	.6403
1600	Chicago, Ill.	.5640
1640	Cincinnati, Ohio - Ky. - Ind.	.5801
1680	Cleveland, Ohio	.5914
1760	Columbia, S. C.	.6043
1840	Columbus, Ohio	.5728
1880	Corpus Christi, Texas	.6123
1920	Dallas, Texas	.5933
1960	Davenport - Rock Island - Moline, Iowa-Ill.	.6251
2000	Dayton, Ohio	.6376
2080	Denver, Colo.	.5792
2120	Des Moines, Iowa	.5684
2160	Detroit, Mich.	.6263
2240	Duluth - Superior, Minn. - Wisc.	.5700
2320	El Paso, Texas	.5692
2360	Erie, Pa.	.6378
2640	Flint, Mich.	.6128
2680	Fort Lauderdale - Hollywood, Fla.	.5895
2760	Fort Wayne, Ind.	.6589
2800	Fort Worth, Texas	.6423
2840	Fresno, Calif.	.5267
2960	Gary - Hammond - East Chicago, Ind.	.5966
3000	Grand Rapids, Mich.	.5907
3120	Greensboro-Winston-Salem-High Point, N.C.	.6199

TABLE 2 (cont'd)

SMSA CODE[a]	METROPOLITAN AREA	UNSTD. DELTA[b]
3160	Greenville, S. C.	.6414
3240	Harrisburg, Pa.	.5893
3280	Hartford, Conn.	.6055
3320	Honolulu, Hawaii	.5461
3360	Houston, Texas	.6468
3400	Huntington – Ashland, W.Va. – Ky. – Ohio	.6691
3480	Indianapolis, Ind.	.5844
3560	Jackson, Miss.	.6126
3600	Jacksonville, Fla.	.6010
3640	Jersey City, N. J.	.5322
3680	Johnstown, Pa.	.6517
3760	Kansas City, Mo. – Kan.	.5607
3840	Knoxville, Tenn.	.6432
4000	Lancaster, Pa.	.6304
4040	Lansing, Mich.	.5266
4120	Las Vegas, Nev.	.5176
4400	Little Rock – North Little Rock, Ark.	.6294
4440	Lorain – Elyria, Ohio	.6399
4480	Los Angeles – Long Beach, Calif.	.5478
4520	Louisville, Ky. – Ind.	.6348
4720	Madison, Wisc.	.5085
4920	Memphis, Tenn. – Ark.	.6316
5000	Miami, Fla.	.5508
5080	Milwaukee, Wisc.	.5906
5120	Minneapolis – St. Paul, Minn.	.5724
5160	Mobile, Ala.	.6791
5360	Nashville – Davidson, Tenn.	.5714
5480	New Haven, Conn.	.5517
5560	New Orleans, La.	.6397
5600	New York, N.Y.	.4901
5640	Newark, N.J.	.6012
5680	Newport News – Hampton, Va.	.6687
5720	Norfolk – Portsmouth, Va.	.6071
5880	Oklahoma City, Okla.	.5859
5920	Omaha, Nebr. – Iowa	.6106
5960	Orlando, Fla.	.6424
6000	Oxnard – Ventura, Calif.	.6023
6040	Paterson – Clifton – Passaic, N.J.	.6130
6120	Peoria, Ill.	.6230
6160	Philadelphia, Pa. – N.J.	.5744
6200	Phoenix, Ariz.	.5570
6280	Pittsburgh, Pa.	.6358
6440	Portland, Oreg. – Wash.	.5534
6480	Providence-Pawtucket-Warwick, R.I.-Mass.	.5825
6680	Reading, Pa.	.6376

TABLE 2 (cont'd)

SMSA CODE[a]	METROPOLITAN AREA	UNSTD. DELTA[b]
6760	Richmond, Va.	.6084
6840	Rochester, N.Y.	.6099
6880	Rockford, Ill.	.6580
6920	Sacramento, Calif.	.5104
7040	St. Louis, Mo. - Ill.	.5966
7120	Salinas - Monterey, Calif.	.5024
7160	Salt Lake City, Utah	.5661
7240	San Antonio, Texas	.5734
7280	San Bernardino-Riverside-Ontario, Calif.	.5445
7320	San Diego, Calif.	.5503
7360	San Francisco - Oakland, Calif.	.5361
7400	San Jose, Calif.	.5843
7480	Santa Barbara, Calif.	.5516
7600	Seattle - Everett, Wash.	.5673
7680	Shreveport, La.	.6823
7800	South Bend, Ind.	.6163
7840	Spokane, Wash.	.5547
8000	Springfield-Chicopee-Holyoke, Mass.-Conn.	.5879
8120	Stockton, Calif.	.5184
8160	Syracuse, N.Y.	.6002
8200	Tacoma, Wash.	.5175
8280	Tampa - St. Petersburg, Fla.	.6120
8400	Toledo, Ohio - Mich.	.6207
8480	Trenton, N.J.	.5737
8520	Tucson, Ariz.	.5674
8560	Tulsa, Okla.	.6493
8680	Utica - Rome, N.Y.	.6705
8840	Washington, D.C. - Md. - Va.	.4955
8960	West Palm Beach, Fla. - Va.	.6414
9040	Wichita, Kans.	.6531
9120	Wilkes Barre - Hazleton, Pa.	.5929
9160	Wilmington, Del. - N.J. - Md.	.6395
9240	Worcester, Mass.	.5742
9280	York, Pa.	.6088
9320	Youngstown - Warren, Ohio	.6451

[a]The standard metropolitan statistical area code is a four-digit numeric code identifying the SMSAs in the United States arranged alphabetically by name of area. The codes used thus are those established in the Federal Information Processing Standards Publication Series (FIPS Pubs) of the National Bureau of Standards. U.S Bureau of the Census, County and City Data Book, 1972. Washington, D.C.: GPO, 1973), p.XXVII.

[b]UNSTD. DELTA = Unstandardized Index of Dissimilarity = (amount of PSD).

Source: See text.

TABLE 2 (cont'd)

SMSA CODE[a]	METROPOLITAN AREA	UNSTD. DELTA[b]
6760	Richmond, Va.	.6084
6840	Rochester, N.Y.	.6099
6880	Rockford, Ill.	.6580
6920	Sacramento, Calif.	.5104
7040	St. Louis, Mo. - Ill.	.5966
7120	Salinas - Monterey, Calif.	.5024
7160	Salt Lake City, Utah	.5661
7240	San Antonio, Texas	.5734
7280	San Bernardino-Riverside-Ontario, Calif.	.5445
7320	San Diego, Calif.	.5503
7360	San Francisco - Oakland, Calif.	.5361
7400	San Jose, Calif.	.5843
7480	Santa Barbara, Calif.	.5516
7600	Seattle - Everett, Wash.	.5673
7680	Shreveport, La.	.6823
7800	South Bend, Ind.	.6163
7840	Spokane, Wash.	.5547
8000	Springfield-Chicopee-Holyoke, Mass.-Conn.	.5879
8120	Stockton, Calif.	.5134
8160	Syracuse, N.Y.	.6002
8200	Tacoma, Wash.	.5175
8280	Tampa - St. Petersburg, Fla.	.6120
8400	Toledo, Ohio - Mich.	.6207
8480	Trenton, N.J.	.5737
8520	Tucson, Ariz.	.5674
8560	Tulsa, Okla.	.6493
8680	Utica - Rome, N.Y.	.6705
8840	Washington, D.C. - Md. - Va.	.4955
8960	West Palm Beach, Fla. - Va.	.6414
9040	Wichita, Kans.	.6531
9120	Wilkes Barre - Hazleton, Pa.	.5929
9160	Wilmington, Del. - N.J. - Md.	.6395
9240	Worcester, Mass.	.5742
9280	York, Pa.	.6088
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[b]UNSTD. DELTA = Unstandardized Index of Dissimilarity = (amount of PSD).

Source: See text.

of 250,000 or more in 1970, for which the requisite "detailed" professional

occupations data were available.

The index values range from an absolute minimum of 48.5 for the SMSA

of Austin, Texas to a high of 69.1 for the Beaumont-Port Arthur-Orange,

Texas SMSA. Generally speaking, most metropolitan areas have values in

the low to middle range of the pattern displayed by all the observed

scores taken together, literally fabricating a near normal distribution

pattern. (Descriptive statistics for the distribution are assembled in

Table 3.) In general, according to the mean value of the indexes

($\overline{X}$ = .597, δ = .045), about 60% of the members of either sex would have

to be occupationally relocated for equality to be obtained in metro-

politan professional structures.

No further analysis is needed to make the following generalization:

In the metropolitan United States there is a substantial degree of sexual

differentiation within the professional sector of the labor force. On

the basis of our data, this is true for metropolitan settings in all regions,

for those of all sizes, and for metropolitan environments of every con-

ceivable type. Professional sexual differentiation prevails at some

magnitude, despite the record of feminist activities, despite the passage

of deterring legislation, and despite the now long-continuous influence

of technological and industrial change. Of course, these are obviously

rather sweeping generalizations. And there are meaningful variations

in the exact levels of index values among cities. But at best, the obvious

range of possible variation can only qualify these generalizations.

Region

The comparative, region-specific history of the evolution of

metropolises in the United States is, in no small measure, significant

because of the earlier development of agricultural, industrial, trade

and commercial facilities first within metropolises of the Northeast

region, and only later, in metropolises of the South and West. (Duncan

et al., 1960; Duncan and Lieberson, 1970; Vance and Smith/Sutker, 1954.)

Indeed, several present-day metropolitan distinctions derive from

unalterable factors of historical circumstance. Many such differences

are in part responsible for certain features of functional, and thus

structural, differentiation found among the metropolitan centers of the

United States. Thus depending upon the region of location of a metropolis,

a wide variety of region-specific influences may affect sexual differentia-

tion. Hence an examination of regional and subregional groupings of the

values of the indexes of professional sexual differentiation provides an

important starting point for analysis.

In Table 3, average index values for each major census region and

subregion are presented, along with an average value for all of the 125

SMSAs combined. For the SMSAs in the North and South, the mean amount

of professional sexual differentiation is above the grand mean; for West-

ern SMSAs the average is considerably lower. There is, however, some

overlap in values of the indexes reported for certain subregions. The

professional occupations of metropolitan areas in the Northern Mountain

subregion, on the average, display slightly more sexual differentiation

than the metropolises in the Delaware, Maryland, and District of Columbia

subregion. In addition, some Southern subregions contain metropolitan

groups with average values which are lower than some of the means computed

for subregions in the North. Hence, the general regional averages conceal

an important amount of intermetropolitan variation among the independent

TABLE 3

AVERAGE PSD INDEXES FOR REGIONS AND CENSUS DIVISIONS,
125 SMSAs, 1970.

Major Regions and Sub-Regions	# OF SMSA's	Mean USD[a]
NORTH	62	.600
New England	7	.587
Middle Atlantic, Coastal	11	.590
Middle Atlantic, Other	10	.623
Delaware, Maryland & D.C.	3	.572
East North Central	23	.605
West North Central	8	.595
SOUTH	39	.621
Kentucky, Tennessee & W. Virginia	6	.632
North Carolina and Virginia	5	.630
Deep South	12	.634
Florida	6	.606
Oklahoma and Texas	10	.605
WEST	24	.551
Northern Mountain	2	.573
California and Southwest	17	.550
Oregon and Washington	4	.549
Hawaii	1	.546
TOTAL – ALL SMSAs	125	.597

[a]USD = Unstandardized Index of Dissimilarity = (amount of PSD).

centers and the same may be said for the subregional averages, but to a lesser extent.

SMSA Size, Age and Percentage of the Labor Force that is Female

Average values of the dissimilarity indexes appear to vary systematically almost as much by size of SMSA, and by the percentage of the labor force that is female, as they do by region (see Table 4). Yet, when the metropolitan areas are grouped by age, only a slight and inconsistent tendency toward a positive relationship is obtained.[5] If the cities are grouped according to size, however, the averages of the indexes systematically decrease as the size of SMSAs increase.

Though, over time, the sexual composition of a few select professional occupations has swiftly changed (Gross, 1968), the radical transformation of traditional patterns of occupational allocation has not been widespread in metropolitan America. In some cities, especially in cities whose histories have a distinctive social and cultural tradition, the over-arching influence of that tradition may well be pronounced. But does the metropolitan complex, despite the impact of tradition, inevitably evolve, over time, a less sexually differentiated professional work force? Or is the evolutionary-developmental process somehow constrained by opposing influences? As a metropolis secures its position as a center of commercial, industrial and trade activity for its hinterland, does age or maturation of metropolitan sturcture alone affect the allocation of work roles? According to our data, the classification of SMSAs by age alone, for the most part, does not expose interpretable patterns for levels of PSD.

TABLE 4

AVERAGE INDEXES OF PSD FOR 125 SMSAs AGGREGATED ACCORING TO
TOTAL POPULATION SIZE, SMSA AGE, AND PERCENTAGE
OF THE METROPOLITAN LABOR FORCE THAT IS FEMALE.

	# OF SMSA's	Mean USD[a]
Population Size		
250,000 - 499,999	60	.607
500,000 - 999,999	32	.598
1,000,000 - 2,999,999	27	.583
3,000,000 or more	6	.556
SMSA Age		
1900 or before	62	.596
1910	18	.602
1920	16	.607
1930	12	.599
1940	4	.565
1950	10	.605
1960	3	.553
Percent Labor Force Female		
1. 39.54%	25	.582
2. 38.30 39.54%	24	.590
3. 37.11 38.30%	24	.609
4. 35.12 37.11%	26	.609
5. 35.12%	26	.596

Source: See text.

[a]USD = Unstandardized Index of Dissimilarity = (amount of PSD).

Comparing the group averages of the dissimilarity indexes for SMSAs classified by quintile rank with respect to the percentage of females in the labor force reveals only a partial, modest tendency toward an inverse relationship between the percentage of the labor force that is female and PSD.

SUMMARY

The present paper has been devoted to a detailed description of professional sexual differentiation (PSD) within the metropolitan labor force of the United States in 1970. We first examined the aggregate profile characteristics of the total metropolitan labor force as represented by the professional work force of the 125 SMSAs with large populations (250,000) in 1970. Next, we turned attention to a summary description of sexual segregation within the independent metropolitan professional occupational structures.

Through examination of the aggregate profile, a variety of specific general sexual characteristics of metropolitan professional occupations were exposed. A not insignificant amount of sexual differentiation, for example, was found as a feature of most professions; in fact, most are male-dominated--at least 75 of the 111 professional occupation classes. In comparison, only 10 female-dominant professions were identified, and 24 were judged neutral.

Considering the distributional patterns of each of the sexes independently, our data illustrate that males are more widely scattered throughout the professions as a whole, whereas female professionals are to be found in a surprisingly small number of female-dominant occupations. On balance, it would appear as if the general patterns of

sexual participation in professional occupations are much in accord with the generalization made some years ago by Gross (1968) when he observed a trend toward perhaps greater segregation in male occupations and less segregation and less restrictive entry for males in female occupations. Such a characterization appears especially apt for the professions since males are aligned more than are females with presumably segregated occupations.

When the profile analysis was extended to consider the relative importance of the professional occupation classes as determined by size, two additional facts emerged. One is that there are few relatively large professional occupations. The other is that professions that are large in relative scale are, in most cases, disproportionately female. Thus two-thirds of professional women are found among the workers enumerated within the five largest occupations.

This descriptive analysis of the degree of sexual differentiation among large metropolises has revealed the prevailing substantive magnitude and the general patterning of the degree of professional sexual differentiation within metropolitan America, regardless of the size, the location, or the structural type of a metropolis. Inspection of levels of sexual differentiation among the major census regions suggested that Southern and Northern SMSAs are above average, Western SMSAs somewhat below; when the SMSAs were arrayed by subregion, however, these broad regional variations were disarranged. Associated with decreases in PSD index value were increases in SMSA size, and increases in the percentage of the labor force that is female. When the large SMSAs were grouped according to age, there were no discernible systematic distributions of the indexes.

NOTES

[1]Robert K. Merton would describe occupations as sex-typed "when a very large majority of those in them are of one sex and when there is an associated normative expectation that this is as it should be." (See Epstein, 1970.)

[2]The general acceptance of the index of dissimilarity has not been without debate and an important technical discussion continues.

[3]The claim here is not that all professionals are represented in our aggregate profile; not even all professionals based in metropolitan areas since the smaller metropolises are not included in our basic data. The majority of professional workers, though, are included--roughly 71% of the United States total.

[4]Oppenheimer (1970, pp. 64-77) referred to all occupations that had a larger concentration of female workers than would be expected on the basis of their overall labor force proportions as "disproportionately female" occupations. In the same analysis, the sole criterion of 70% (female) is employed to uniquely distinguish "predominantly female" occupations. This latter criterion has been similarly applied in interpretation of our data for both male and female concentrations in occupations.

[5]There is no optimum operational version of the concept of age as it pertains to metropolitan areas. From the alternative measurements considered (Schnore and Evenson, 1966), we choose to index the age of an SMSA in terms of the number of decades that have passed since each metropolis first reached the population size of 100,000 or more. Using census years as a classification criterion, an eight-category quasi-ordinal age scale was created; one category

is open-ended (1900 or before). Since by 1960, all of the large SMSAs

had reached the criterion size of 100,000, the age scale apportioned the

SMSAs into seven age classes. Excepting the category 1900 or before,

the age classes identify metropolises which have matured, in size and also

in terms of function, within a decade of one another.

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